

# Electric Bicycle

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**Abstract:** *An electric bicycle, also known as an e-bike or booster bike, is a bicycle with an integrated electric motor which can be used for propulsion. Proposed embedded system will be an add-on to an e-bike to include features like calorie measurement, biometric lock security and GPS tracking. Enhanced security features can make purchasing the e-bike a low-risk option. User can lock/unlock his bicycle using a centralised interface. A micro-GPS chip added to the bicycle will help in detecting the location in case of an accident or theft. Bicycles can be reserved to be picked up from a particular location by an app and an Aadhaar card number. The billing and user statistics will be synced with this number only. This data can also be used to suggest routes for people with health problems. GPS coordinates along with time data can be used to estimate time to travel from one location to another. The features will be implemented using the existing power supply of the bicycle. The project thus aims to reintroduce the bicycle with more user friendly and low-cost features. An attempt will be made to model a similar design for the simple bicycles.*

**Keywords:** Electrically Assisted Power Cycle, Metropolis Environment, Prototype, Last Mile.

## I. INTRODUCTION

This project aims to make the cycle a more accessible vehicle. The electric bicycle offers a cleaner alternative to travel short-to-moderate distances rather than driving a gasoline-powered car. Once upon a time, Pune used to be called the 'cycle-city'. Cycling is a green and healthy choice. In recent years, the United States has increasingly encouraged a cleaner environment and less dependence on foreign oil. The price of crude oil has increased significantly over the past few years and there seems to be no turning back. The environment has also been more of a focus throughout the world in the past few years, and it seems that cleaner alternatives have been steadily on the rise with no end in sight. An increase in traffic, work-home distance and stress has led to the decline of the cycling culture. The electric bicycle is a project that can promote both cleaner technology as well as a lesser dependence on oil. An extra benefit to building the electric bicycle is that it can also show the general public how much cheaper it would be to convert their regular bicycle into an electric bicycle rather than driving solely in their gas-powered vehicles. While different research tracks are being pursued to enable this, my project focuses on the electronic and computing aspects of it. The greater importance of the environment in the world leads to an opportunity for students in our position. With the economy trying to get out of one of the worst depressions of the century, there are numerous opportunities for us to help out. This is our opportunity to contribute a greener and more efficient planet.



**II. BACKGROUND OF THE USER BASED ON THIS PROJECT**

Besides, the presence of various environmental issues has shifted human focus from using fuel oil to towards energy saving. This also has an impact on the presence of various kinds of transportation that are environmentally friendly and energy efficient. Today's electric bikes have developed and circulated. The use of electric bicycles as a means of transportation is to be able to support activities (mobility) related to the energy expended and the range obtained. Its use around densely populated residential areas is believed to help reduce air pollution, which is currently getting bigger, which is mostly contributed by motor vehicle fumes.

**III. SCOPE OF PROJECT**

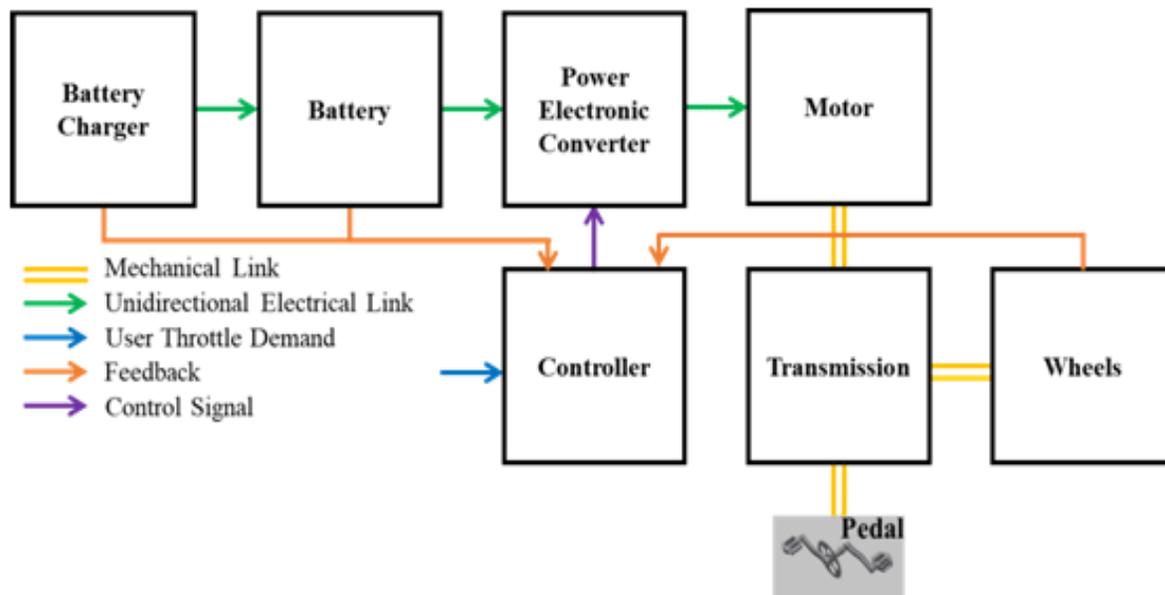
The report also immerses key drivers, hindrances, opportunities and trends that are affecting the expansion of the global e-bike motors market. It attempts a long-term picture of the global e-bike motors market, in order to help businesses seeking opportunities for making investments in the worldwide market.

Industrials and Commercial Organisation (FICO) organised a webinar for the bicycle industry on Thursday wherein the experts deliberated on what approach should be adopted during and post lockdown period. Hero Cycles chairman Pankaj Munjal and additional income tax commissioner Rohit Mehra were the key speakers for the session. They industrialists discussed the steps being taken by the governments as well as what needs to be done at the entrepreneur's end.

The market engulfing an executive summary, introduction and sizing that elucidates the core trends influencing the market expansion. This chapter also sheds light on the impacts that the dynamics are likely to pose on the growth of the market in the long run. There is a huge scope for the bicycle industries and e-vehicles, including e-bikes, e-rickshaws, and e-loaders, in post lockdown period.

Key indicators of market growth, which include Year-on-Year (Y-o-Y) growth of the market, value chain, supply chain analysis, and Compounded Annual Growth Rate (CAGR) are interpreted in Market.us study in a comprehensive manner. This rapidly changing market information can help readers understand the quantitative growth prospects of the e-bike motors market during the forecast period.

**IV. BLOCK DIAGRAM**



**V. HARDWARE COMPONENTS**

SR.NO	Components	Specification	Quantity
1.	Controller	SrNo:DC3648V53	1
2.	Hub motor	350-watt,normal 500w peak	1
3.	Wire kit	Self Made	1
4.	lithium-ion battery	36volt,12mah	1

**VI. RESULT**

The main theme of this project has been to make people aware of this technology, and make it popular among the general mass, so that it helps improving this world by reducing the environmental complications. There has always been this willingness in human race to improve the ongoing technology that is prevailing at a particular time, by bringing a more sophisticated and advanced product than that is what presently available today. This act what actually leads into bringing new developments, progress in every aspect of life for better livelihood all around? That is why by the improvements and growth in science and technology in recent decades, we can see similar progress in the field of transportations also. As we know development is a continuous process and until it reaches into a state of complete perfection, there is always room for its improvements, and our study is just to support this idea. In the field of transportation, we have developed rockets that fly beyond Earths space into outer orbits, we have train that moves with the speed of 600 miles per hour, we have air bus that can carry 700 passengers, which shows the miraculous achievements in transportation sectors. But at the same time we must unanimously agree that the advancement that looks so gleeful and advanced, somehow confined mainly within higher hierarchy only, whereas in lower hierarchy, we are still struggling with continuous energy crisis, higher fuel costs, environmental hazards by unnaturally produced pollutions and so on.

**VII. CONCLUSION**

The issues associated with electric bicycles may be addressed by custom-designed drives that are most efficient over a given operating cycle. These include city bicycles, hill bicycles, distance bicycles, and speedy bicycles. The results of the studies listed here can serve as a platform to improve electric bicycle performance if new drive systems are designed around key parameters that will result in improvement of the system performance. Furthermore, they can be used for comparison of existing drives in a systematical, comprehensive, and technical way.

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